For a contiguity-based geometry

Reference: - *On contiguous point spaces*, Theodore Hailperin, University of Michigan, 1939.

- *Esquisse d'une Sémiophysique*, René Thom, Inter Editions 1988, preamble p12 et 13, about O, a point which splits into O1 and O2, that is two different points that are adjacent.

A-1- The circle and the AB line segment are contiguous in C and D.

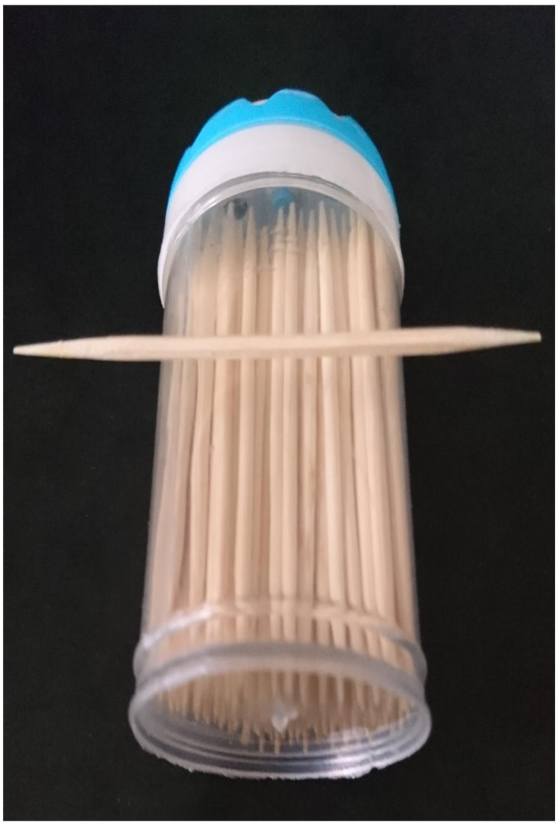
A-2- A-B, C-D and E-F are three well-defined line segments.

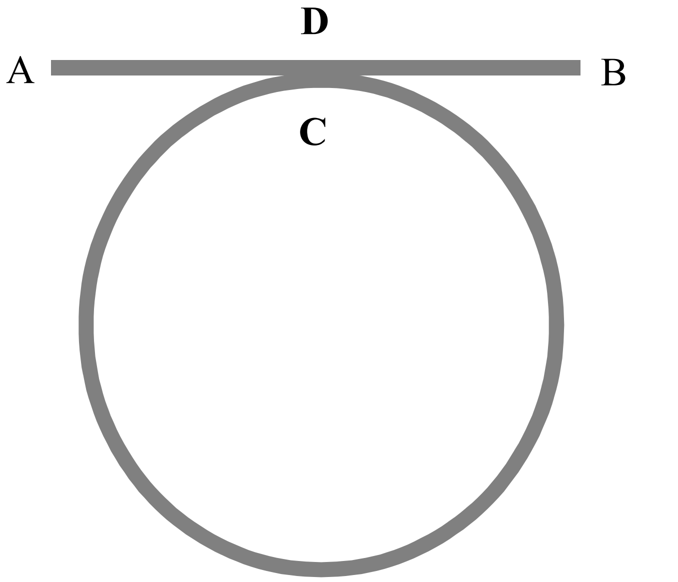
A-3- Each of these three line-segments are contiguous with the two others, forming a triangle which has no vertices.

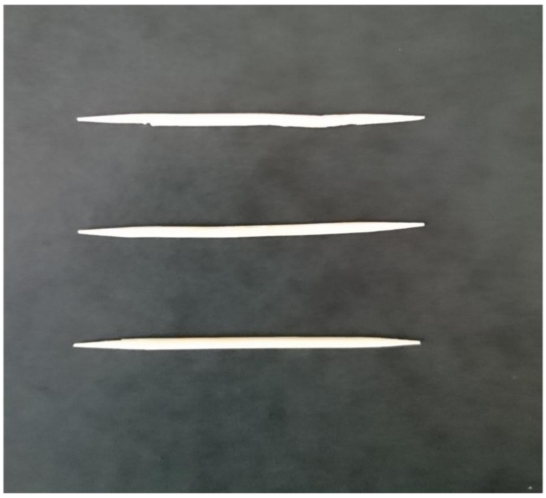
B-1- By varying the size of different line segments, we developed the idea that each is in fact constituted of a group of contiguous points.

B-2- By induction we may postulate the existence of a geometry plane made entirely of contiguous points. We'll call it a contiguity plane.

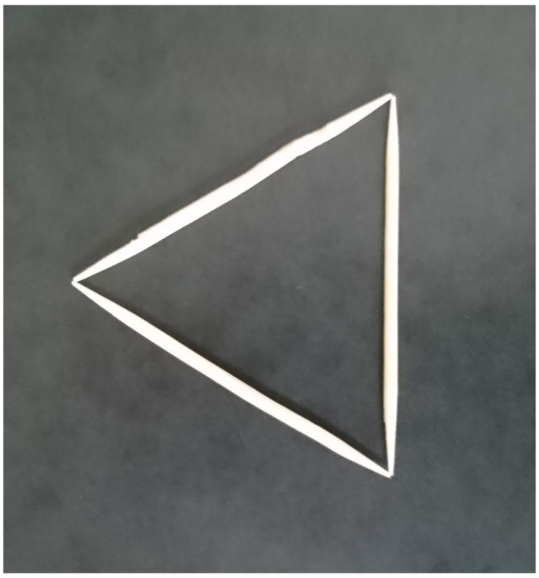
We might have used another way to construct this triangle:

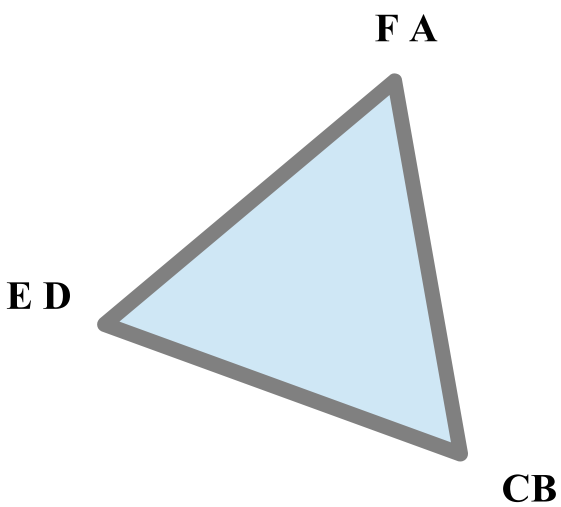



D
A
B
C




A
B
C
D
E
F




F A
E D
CB

C-1- Determine three different points and connect them by line-segments,

C-2- Or draw three intersecting lines.

However, these two last methods would have made appear new geometry elements which didn't exist on the original shape: the three vertices, the continuous line-segments. It would also have removed previously existing elements: the three pairs of contiguous points.

D- The same issue arises using algebra. For example, using an affine frame will create new elements:

- Coordinates for each vertex of the triangle.
- Coordinates for each of the three intersecting lines.

Algebra has not only created elements that were not part of the original shape (the vertices, continuous segments), it removed as well original elements (the contiguity)

E- Using algebra and a continuous frame to work on a contiguous plane will make appear elements that do not exist: cusps, flat spots, inflection points (actually, pairs of contiguous points) which show up, in an algebraic curve, as a singular point.

Following the same reasoning: by placing A over F, C over B and E over D, we get another contiguity plane, over which algebra of curves makes appear other singular points that don't exist: double or triple points, which are in fact pairs of contiguous points.

In conclusion, applying algebraic geometry to physics will show singularities that might not even exist. By analogy, we may relate these two situations: if a changing of frame may result in the disappearance of pseudo-singularities, switching from a continuous geometry to a contiguous geometry may have the same effect.

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